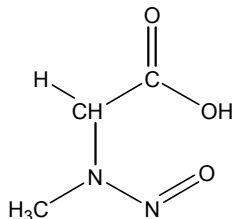


***N*-NITROSOSARCOSINE**

CAS No. 13256-22-9

First Listed in the *Second Annual Report on Carcinogens*



CARCINOGENICITY

N-Nitrososarcosine is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals (IARC V.17, 1978; IARC S.7, 1987). When administered in the diet, *N*-nitrososarcosine induced squamous cell carcinomas of the nasal region in mice of both sexes. When administered in the drinking water, *N*-nitrososarcosine induced papillomas and squamous cell carcinomas of the esophagus in rats. When administered by intraperitoneal injection, *N*-nitrososarcosine induced hepatocellular carcinomas in newborn male mice.

There are no data available to evaluate the carcinogenicity of *N*-nitrososarcosine in humans (IARC V.17, 1978; IARC S.7, 1987).

PROPERTIES

N-Nitrososarcosine is a pale yellow crystalline solid. It is soluble in water and in polar organic solvents. It decomposes in light and is especially sensitive to ultraviolet light. When heated to decomposition, it emits toxic fumes of nitrogen oxides (NO_x). It is unstable in aqueous solutions.

USE

N-Nitrososarcosine is not used commercially in the United States. There is limited use for the compound in research (IARC V.17, 1978).

PRODUCTION

The Chem Sources USA directory identified one supplier of *N*-nitrososarcosine in 1986 (Chem Sources, 1986). There is no evidence that *N*-nitrososarcosine has been produced commercially in the United States. Synthetic production of nitrosamines is limited to small quantities, primarily for use as research chemicals (HEEP, 1980).

EXPOSURE

The primary routes of potential human exposure to *N*-nitrososarcosine are inhalation, ingestion, and dermal contact. In air it is predominantly in the gas phase and degrades in atmosphere by reaction with photochemically produced hydroxyl radicals (half-life of 1.9 days). Investigations have detected *N*-nitrososarcosine in foodstuffs, particularly meat, in concentrations of 2-56 µg/kg of sample (IARC V.17, 1978). *N*-Nitrosamines are frequently produced during rubber processing and may be present as contaminants in the final rubber products. Potential exposure depends on the ability of the nitrosamines to migrate from the products and enter the body. Significant levels of *N*-nitroso compounds have been identified in a number of materials including pesticides, cosmetics, cutting fluids, and fire-resistant hydraulic fluids. The *N*-nitroso compounds found in these products were apparently formed in situ during storage or handling as the result of a reaction between amines present in the mixture and inorganic nitrite, which may have been added as a corrosion inhibitor (CHIP, 1978). *N*-Nitrososarcosine may be produced by various reactions in air, water, soil, food and animal systems.

REGULATIONS

EPA's Carcinogen Assessment Group includes *N*-nitrososarcosine on its list of potential carcinogens. As a result, EPA regulates *N*-nitrososarcosine under the Resource Conservation and Recovery Act (RCRA), subjecting it to report/recordkeeping requirements. EPA solicited comments on possible designation of a reportable quantity (RQ) for *N*-nitrososarcosine under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). OSHA regulates *N*-nitrososarcosine under the Hazard Communication Standard and as a chemical hazard in laboratories. Regulations are summarized in Volume II, Table B-112.